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Rural Sanitation; or, Physical Betterment in Country Life

BY

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RURAL SANITATION; OR, PHYSICAL BETTERMENT IN COUNTRY LIFE.¹

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I. INTRODUCTORY.

I AM very glad for the opportunity of addressing this audience upon so important a topic as "Rural Sanitation." As every intelligent person must know, this subject has been sadly neglected. Hitherto it has been customary to give precedence to all other matters of public interest, thus crowding out sanitary questions entirely. But there has been a public health awakening, and the people of this State are beginning to realize that good health is a most valuable asset, and that without it one can scarcely hope to succeed in any avocation in life.

Rural sanitation might be aptly compared to a gigantic oak tree with many branches, of which the most important are the following:

- (a) Personal hygiene.
- (b) Sanitation in the home.
- (c) Hygiene of infancy and childhood.
- (d) Food and drink.
- (e) Preventable diseases.
- (f) Sewage and drainage.²

II. PERSONAL HYGIENE.

Personal hygiene is the highway to health and the byway to longevity. Who is there among you who does not desire to live

¹Paper read before the Ladies' Club of Glyndon, Baltimore county, Maryland, on Thursday afternoon, June 27, 1912, at 4 o'clock; and also before the Men's Club of Reisterstown and Glyndon at 8.30 P. M. on the same date.

²I had originally intended to include a seventh subheading, namely, "Care of the Teeth," but was deterred from doing so upon reading what Dr. John Brown, in his little work entitled "Health: Five Lay Sermons to Working People," has to say about teeth on page 81.

"I had a word about *Teeth*. Don't get young children's teeth drawn. At least, let this be the rule. Bad teeth come of bad health and bad and hot food and much sugar. I can't say I am a great advocate for the common people going in for toothbrushes. No; they are not necessary in full health. The healthy man's teeth clean themselves, and so does his skin. A good dose of Gregory often puts away the toothache. It is a great thing, however, to get them early stuffed if they need it; that really keeps them and your temper whole."

long? Life is sweet—and beautiful if we make it so.³ To the lover of nature the seasons, each possessing a peculiar charm which is all its own, come and go with amazing rapidity. We cannot, like Joshua of old, command the sun to stand still; but, debarring accident and preventable disease, we may, by paying strict attention to personal hygiene, prolong life to the latest limit.

A short time ago I added to my library a very rare and interesting book published in London in 1799. It is entitled *Human Longevity*,⁴ and contains the names of 1712 persons who passed the age of 100 years. Naturally enough, I was deeply interested, and desired to know something of the habits and manner of living of at least a portion of this remarkable group of centenarians. Hurriedly turning the pages, I found the record of a man who died near London, England, at the advanced age of 110 years. He had never been ill, and had maintained through life a cheerful, happy temperament.⁵ The following is a summary of this

³As Henry Wadsworth Longfellow, the most popular American poet, born in Portland, Maine, February 27, 1807; died at Cambridge, Mass., March 24, 1882, wrote in his diary: "We have but one life here on earth; we must make that beautiful." His motto was: "Look not mournfully into the past—it comes not back again; wisely improve the present—it is thine; go forth to meet the shadowy future without fear and with a manly heart." Of him Edmund Clarence Stedman has said: "His song was a household service, the ritual of our feastings and mournings; and often it rehearsed for us the tales of many lands, or, best of all, the legends of our own. I see him, a silver-haired minstrel, touching melodious keys, playing and singing in the twilight, within sound of the rotes of the sea. There he lingers late; the curfew bell has tolled and the darkness closes 'round, till at last that tender voice is silent, and he softly moves unto his rest."

⁴The following is a copy of the dedicatory page of Easton's book. Its full title is, "Human Longevity: recording the Name, Age, Place of Residence, and Year, of the Decease of 1712 Persons, who Attained a Century & Upwards, from A. D. 66 to 1799, comprising a period of 1733 years. With anecdotes of the most remarkable." By James Easton.

TO THE OLDEST MAN ALIVE.

Whoe'er thou art, of whatsoever station,
Kindly accept this humble Dedication:
And may You long the envy'd boon enjoy.
Pure Nature's choicest gift, without alloy!—
But while to You I dedicate my Page,
O, might THEY listen—THEY of Younger Age!
Who careless now, beneath the morning beam,
Glide swiftly down Corruption's fatal stream,
May THEY peruse, with profitable care,
My Book—and learn, from each example there,
To follow Nature, in her frugal plan,
And thus to lengthen out their little span!
Not Galen's skill, or Aesculapian rules,
The pride of learning, or the boast of schools:
But Temp'rance, Exercise, and all the train
Of Sober virtues, chase disease and pain:—
So shall my humble labours merit praise,
And future PARRS be blest with honor'd days!

Salisbury, October 1, 1799.

Consult also, in this connection, pp. 116-131 of a quaint little volume by J. D. Koogle, entitled "The Farmer's Own Book," published in Baltimore in 1857. Among recent literature Dr. H. F. Harris' book, "Health on the Farm," and Ernest Ingersoll's "Animal Competitors," should be in the library of every dweller in suburban and rural districts.

⁵A bard of our own profession has beautifully sung:

"Whatever cheerful or serene
Supports the mind, supports the body too;
Hence, the most vital movement mortals feel
Is hope; the balm and life blood of the soul;
It pleases and it lasts."

man's treatment of himself, with a few additional notes on his personal history and hygiene:

He was unusually kind and obliging to everybody; he quarreled with no one; he ate and drank merely that he might not suffer from hunger and thirst, and never beyond what necessity required; from his earliest youth he never allowed himself to be unemployed. These were the only means he used.

Continuing my search, I next read the account of a woman who died near Stockholm, Sweden, at 115 years of age. It is stated that she never was ill, and was always of a contented disposition. Her methods of personal hygiene can be summed up as follows:

She always had a great love of cleanliness, and was in the daily habit of washing her face, hands and feet in cold water, and, as often as opportunity offered, she bathed in the same. She never ate or drank any delicacies or sweetmeats, seldom coffee, seldom tea, and never wine.

I have noted a third instance, which brings out several additional features in personal hygiene. It is that of a man who died near St. Petersburg, Russia, having enjoyed good health until he was 120 years old. The following is a synopsis of his daily habits:

He was an early riser, and never slept beyond seven hours at a time; he never was idle; he employed himself chiefly in the open air, and particularly in his garden; whether he walked or sat in his chair, he never permitted himself to sit awry or in a bent posture, but was always perfectly straight. The luxurious and effeminate habits of citizens he held in contempt.

These three examples suffice to show that simple habits of life are conducive to health and longevity. Before dismissing from our minds the book on *Human Longevity*, it might be interesting to mention that two of the 1712 persons described therein were Marylanders, as follows:

(1) Francis Ange, aged 134 years. Of Maryland. He was born at Stratford-upon-Avon, Warwickshire. He remembered the death of King Charles I, and left England soon after; his wife at 80 had a son, who was 31 years of age at his father's decease, to which time his faculties were perfect and memory strong. Died in the year 1767.

(2) William Hunt, aged 113 years. Of Maryland; the oldest inhabitant there. Died in the year 1772.

From another source I have obtained the record of a third Marylander who lived considerably beyond the century mark. It is as follows:

William Prigden. Of Maryland. Died October, 1845, aged 123 years.

I am sure that enough has been said to convince the most skeptical that personal habits and personal hygiene have much to do with the welfare of an individual. These pertain especially, as illustrated above, to personal cleanliness, habits of industry, hours

of sleep and articles of food and drink. That "cleanliness is next to godliness" has been amply demonstrated.⁶ A warm bath, for example, is needed—

- (1) For purposes of cleanliness.
- (2) To remove infectious materials from the surface of the body.
- (3) To keep the skin healthy and active, thus warding off coughs, colds, and even pneumonia.

Many persons living in rural districts are not provided with ample facilities for bathing. For this reason they suffer much inconvenience. But I believe the day is not far distant when every country home will have its bathroom, its electric lights and its gas range. Our country homes are the bulwark of the nation, and we should do all in our power to make them more attractive and convenient. Such a step would undoubtedly prevent many boys and girls from becoming dissatisfied and drifting from the country to the city, oftentimes to their own detriment and to the detriment of the homes which they leave desolate.

While I fully believe that "industry is itself a treasure," I know only too well that many persons living in rural districts work too hard. This is partly due to the fact that suitable help is so difficult to obtain. Above all others, it is usually the housewife and mother who is overworked. Sometimes it is the growing boy or the growing girl.

When a mother nursing her child is overworked, injury is done both the mother herself and to her offspring. The former, for humanity's sake, and the latter, for its own sake, should receive more considerate treatment. In regard to the boys and girls, they are many times physically taxed beyond their years, stunting their growth and making them prematurely aged. The Child Labor law is doing much good in the prevention of such occurrences.

I still believe in the old adage, "Early to bed and early to rise." Everyone needs a goodly amount of "tired Nature's sweet restorer—balmy sleep."⁷ But the number of hours needed varies in different individuals. For example, Napoleon Bonaparte and Sir Walter Scott only slept 4 hours out of the 24, and Ralph Waldo Emerson only allowed himself 2 hours sleep. Most adults, however, require six or seven hours, and children proportionately longer, because every hour that a child sleeps means so much energy stored up for future use.

⁶Dr. John Brown, the genial author of "Rab and His Friends," in his booklet previously mentioned, metes out the following advice on page 58:

"Now, first, for *the skin*. You should take great care of it, for on its health a great deal depends; keep it clean, keep it warm, keep it dry, give it air; have a regular scrubbing of all your body every Saturday night, and if you can manage it, you should every morning wash not only your face, but your throat and breast with cold water, and rub yourself quite dry with a hard towel till you glow all over. You should keep your hair short if you are men; it saves you a great deal of trouble and dirt.

⁷From Edward Young's *Night Thoughts*. The full stanza is:

"Tired Nature's sweet restorer, balmy sleep!
He, like the world, his ready visit pays
Where fortune smiles; the wretched he forsakes."

The question of food and drink will be discussed under another heading.

III. SANITATION IN THE HOME.

A high and dry location is best for the home, be it urban, suburban or rural.⁸ As the female portion of the population spend a large part of their time in the house, the site cannot be too carefully selected. In this latitude, whenever practicable, a house should face the east or the south, thus ensuring the maximum amount of sunshine during the winter months. A few trees planted on the north or northwest side will act as a protection from wind and storm, but the shade should not be too dense, else the house will be damp and unhealthy, making those who dwell therein subject to rheumatic and pulmonary complaints.⁹

As a rule, the location of most of our country homes is ideal. But many times the house is either too large or too small. If too large, it is insufficiently heated; if too small, the air space per individual is inadequate.¹⁰ Many country homes do not have enough window space, and it is exceedingly uncommon to find one that is

⁸Florence Nightingale, in her admirable "Notes on Nursing," has the following to say, on page 24, concerning the health of houses:

"There are five essential points in securing the health of houses—

- "1. Pure air.
- "2. Pure water.
- "3. Efficient drainage.
- "4. Cleanliness.
- "5. Light.

"Without these no house can be healthy. And it will be unhealthy just in proportion as they are deficient."

⁹Dr. Henry Ingersoll Bowditch of Boston, in his able address before the Massachusetts Medical Society, called attention to the frequent connection between cases of pulmonary consumption and dampness of the soil upon which the patients lived. After a very extended and laborious investigation, Dr. Bowditch formulated these two propositions:

"*First*—A residence in or near a damp soil, whether that dampness be inherent in the soil itself or caused by percolation from adjacent ponds, rivers, meadows or springy soils, is one of the principal causes of consumption in Massachusetts, probably in New England, and possibly other portions of the globe.

"*Second*—Consumption can be checked in its career, and possibly—nay, probably—prevented in some instances by attention to this law." (*Vide* Dr. Bowditch's memoir, "Consumption in New England and Elsewhere," second edition, p. 877. Boston, 1866.)

¹⁰In Besant's excellent little brochure, "The Law of Population: Its Consequences and Its Bearing Upon Human Conduct and Morals," there occurs the following paragraph on page 19:

"Overcrowding in country districts is, naturally, not so injurious to health as it is in the towns: the daily work in the open air, the fresh breeze blowing round the cottage, and cleansing, to some extent, the atmosphere within; the fields and lanes where the children can play—all these things may do much to neutralize the harm to health wrought by overcrowding at night. The injury to health, caused by large families among the agricultural poor, arises more from other causes than from overcrowding; the low wage cannot afford a house sufficiently good, and the cheap, ill-built cottage, damp, draughty, badly-drained, brings to those who live in it the fever, and the ague, and the rheumatism so sadly common among these laboring classes. But the moral effect of overcrowding is, so the present Bishop of Manchester said—when serving, as the Rev. J. Fraser, in the Royal Commission on the employment of children, young persons, and women in agriculture—'fearful to contemplate.' 'Modesty,' he goes on, 'must be an unknown virtue, decency an unimaginable thing, where, in one small chamber, with the beds lying as thickly as they can be packed, father, mother, young men, lads, grown and growing up girls—two and sometimes three generations—are herded promiscuously: where every operation of the toilette and of nature—dressings, undressings, births, deaths—is performed by each within the sight or hearing of all; where children of both sexes, to as high an age as twelve or fourteen, or even more, occupy the same bed; where the whole atmosphere is sensual, and human nature is degraded into something below the level of the swine.'"

properly ventilated.¹¹ There are two principal reasons for this state of affairs, both of which can be easily overcome:

(1) Our rural population has not been properly educated in the art of ventilation.

(2) In a country home it is rare to find windows which can be lowered from the top, and in order to ventilate a room properly this must be done.

In many country homes sunshine and fresh air are rarely permitted to enter the living-rooms, to say nothing of the spare-rooms. In order for the occupants to retain their good health, it is necessary that ventilation should be properly done, both summer and winter. This applies with even greater force to sleeping-rooms, where each adult should have at least 1000 cubic feet of air space, or the equivalent of a room which is at least 10x12x9 feet. The rural part of our population is especially derelict in regard to the ventilation of living-rooms and bed chambers. Season should be no barrier, a fall in the outdoor temperature being met by heavier bed covers or an additional blanket.¹²

Other essentials are a wholesome and abundant drinking-water

¹¹Walter Noel Hartley, F.C.S., in his work entitled "Air and Its Relations to Life," it being the substance of a course of lectures delivered in the summer of 1874 at the Royal Institution of Great Britain, discourses as follows concerning the air of close places on pp. 73 and 74:

"It has been experimentally proved that *when the heat is not excessive the organic matter charging the air of crowded places rises in amount as the carbonic acid increases*, so that in the estimation of carbonic acid we have a measure of foulness of the air, or, as it may be termed, want of ventilation. Coming from the outside into a room in the condition we call 'close' or 'stuffy,' we enter an atmosphere which does not contain less than six volumes of carbonic acid in 10,000 of air. But the 'closeness' is detected generally by the nose, and is the effect of organic exhalations rather than of carbonic acid; nevertheless, the two are hand-in-glove, so the carbonic acid, which can be measured with greater certainty and ease than the other pollution, tells the story for both."

¹²Dr. Dio Lewis, on pp. 64 and 65 of his excellent little volume entitled "Weak Lungs, and How to Make Them Strong," writes as follows in regard to night air:

"Many persons indulge in a very silly dread of a draught. It is only by motion in the atmosphere that our lungs obtain the purest air. If at night the air moves briskly directly over your bed, your lungs will receive precious supplies. If you cannot endure this direct draught, you must deny yourself a great luxury. I once thought that a draught at night directly over my head was a thing to be avoided. Now I seek it as one of the real blessings of life. My wife, who inherited a consumptive taint, was ever guarding against night air. Now she sleeps with two open windows at one end of the bed and an open door at the other. Neither of us have had a cold for several years. Everyone must exercise his own judgment and prudence. I should be sorry were my words to lead anyone into an injurious exposure. But among the many hundreds—I might say thousands—whom I have advised to sleep with open windows, I have never known a single person to be seriously injured, even temporarily; and I may add that, almost without exception, so far as I have known, they would not return to their former habit of sleeping in unventilated rooms. At first you may contract a cold, but if you bathe freely in cold water and employ vigorous friction upon the parts exposed while in bed, even this may be avoided. But after a few weeks' experience it will be quite unnecessary for the physiologist to lecture you on the subject. You will yourself take to exhorting your friends upon the importance of well-ventilated bedrooms. One of the compensations of our great war will be found in the conviction among a million returned soldiers that night air is not a poison, and that draughts are less dangerous than Minie balls."

supply,¹³ good drainage and screening of the houses to protect from flies and mosquitoes. The barn and other buildings should not be erected in too close proximity to the house, and close association with dogs, cats and other domestic animals should be forbidden as dangerous. Heating a house is also a great problem. Most living-rooms are really overheated, 40 per cent. of the diseases of winter resulting therefrom.

IV. HYGIENE OF INFANCY AND CHILDHOOD.

"'Tis education forms the common mind,

Just as the twig is bent the tree's inclined."

Much has been written concerning the hygiene of infancy and childhood.¹⁴ In the language of that inimitable humorist, the late Mark Twain:

"When the toast works down to the babies, we stand on common ground, for we've all been babies."

Yet the odds are frequently against this helpless bit of humanity. Very often he is not given proper food at proper intervals. He is permitted to sit on the cold, damp floor, perchance laden with dust and disease germs. Every "granny" in the neighborhood is permitted to kiss him, to say nothing of countless relatives and casual acquaintances.

With the exception of a baby's feet, he is nearly always too warmly clad. Summer and winter he is rolled about in his little carriage, with the full glare of the noonday sun shining directly into his eyes. Is it any wonder that eye diseases are becoming so prevalent in children?

In midwinter he is suddenly taken from an overheated house to the zero weather outside. Ofttimes his slumber is disturbed by flies in summer and unnecessary noise in winter.

¹³Dr. Edward Smith, in his excellent book on "Foods," p. 269, writes as follows concerning water:

"It is needless to insist that water is a most important food, for it is found in all foods, whether solid, liquid or gaseous, and is taken into the body to the amount of several pints daily. It, moreover, constitutes about 87 per cent. of the whole bulk of the body, and as it wastes at every moment, it must be restored by a new supply.

"It is required for many purposes: First, to soften or dissolve solid foods, so as to facilitate their mastication and digestion; second, to maintain a due bulk of blood and the structures of the body; third, to keep substances in solution or suspension whilst moving in the body; fourth, to supply elements in the chemical changes of the body; fifth, to enable the waste material to be carried away from the body; sixth, to discharge superfluous heat by transpiration through the skin and by omission through other outlets, and seventh, to supply in a convenient form heat to, or to abstract heat from, the body. Some of these functions are performed by water in its liquid state, and others in a state of vapour."

¹⁴Dr. Elizabeth Blackwell (1821-1910), the first woman to receive a medical degree, in a series of lectures delivered in the spring of 1852 entitled "The Laws of Life, with Special Reference to the Physical Education of Girls," spoke as follows:

"What, then, must be done in order to save the rising generation from the physical weakness and disease, with their attendant evils, which prevail so widely in the present race, and which are rapidly increasing in extent?

"I answer, first: The domestic habits of our households must be changed for children; their food, dress, sleeping apartments, and hours for rising and retiring must be regulated with scrupulous regard for their physical welfare and according to the principles so often laid down in the course of our remarks.

"Second: The system of school discipline must be essentially modified. The period of life from seven to sixteen being regarded as the special season of physical growth, the bodily development must be considered as the basis of all true education; we must cease to force the learning of a later period upon the youthful mind at that age."

A century ago William Wordsworth wrote the well-known sentence: "The child is father of the man." It is a figure of speech especially applicable to the hygiene of childhood. In order to rear a healthy child, there is no better place than a well-kept country home.¹⁵ In addition, there are three valuable adjuncts, namely:

(1) Nutritious food given in proper amounts and at regular intervals.

(2) Plenty of fresh air, sunshine and outdoor exercise.¹⁶

(3) An abundance of sleep.

Only wholesome and nutritious food should be given to a child.¹⁷ It should be rather "quality, not quantity." This is the only way to lay a sure foundation of health and endurance, both of which traits are necessary to enable one to take his or her place among the world's workers.

V. FOOD AND DRINK.

Good food and a wholesome environment are paramount in a child's life. Children who are poorly fed do not become towers of physical strength nor giants in intellect. There is much in the old proverb, "Give me the first seven years of a child's life, and you may have the rest," because in these early years the foundations of a strong manhood or sturdy womanhood are laid. For purposes of comparison, take a breast-fed baby and one brought up on an indifferent grade of cow's milk. As a rule, the former

¹⁵Dr. John Stockton-Hough, in a paper entitled "On the Relative Influence of City and Country Life, on Morality, Health, Fecundity, Longevity and Mortality," read before the Social Science Association of Philadelphia in the year 1874, concludes with the following paragraphs:

"Large towns have been emphatically called the *graves of humanity*, and certainly they are not favorable to health and longevity. Indeed, they might be very properly compared to the fiery furnace into which the condemned children were cast.

"Those who would live to a good old age and hand their names down through a numerous posterity in children endowed with rich mental gifts should avoid the dangers of the great city and choose the country life.

"It cannot be denied that cities are absolutely necessary for the fostering of the arts, the sciences, the elegancies of life, yet when they are so dearly bought, one cannot help the reflection, as he looks with wonder and admiration at these productions, of how many precious human lives they cost—of how many premature deaths—of how many souls are sacrificed on the altar of the arts.

"The tender mother who has reared the helpless babe in the pure and quiet rural home, and watched it learn to walk and tell its name—studied the growth of character and development of feature—until budding into healthy, innocent manhood or womanhood—if she allow her offspring to choose the city as the field of their fortunes and fancies, with its sins and its syrens, its vices and its vanities, its ills and its iniquities, its pitiless poverty, though mingled with elegance and luxury, with indolence and ease, its follies and frivolities, so attractive to us all—I say if she loose him to all these without her guiding care, and have but little left, as is too often the case, but a misspent life—a wretched wreck, or an untimely death—well may she exclaim with the Roman poet—*Pericula mille sæcæ urbis.*"

¹⁶William Cowper (1731-1800), in his poem *The Task*, expresses this sentiment most beautifully. He wrote:

"God made the country, and man made the town.
What wonder then that health and virtue, gifts
That can alone make sweet the bitter draught
That life holds out to all, should most abound,
And least be threatened in the fields and groves."

¹⁷The quantity of food for a child from five to fifteen should be from one-quarter to one-half as much as a workingman eats. The common notion that when a child is growing he needs unlimited quantities of food is an error.

will far surpass the latter in both brain and brawn, as well as in energy and powers of endurance.¹⁸

Residents in country districts are especially blessed so far as good, wholesome food products are concerned. Everything is first class and first hand. Cold-storage chicken and cold-storage eggs are unknown. Concerning raw foods, however, I wish to sound a note of warning. It applies to cabbage, lettuce, spinach and other garden vegetables which are eaten raw. In certain sections of Baltimore county these were formerly fertilized with "night soil," a pernicious and dangerous practice. In this manner many infectious diseases, notably typhoid fever, dysentery, tape worms, etc., are communicated.

In regard to the quantity of food consumed, I might formulate the axiom: *All of us eat too much; none of us eats too little.* So many of us, as it were, dig our graves with our teeth. Eccentric John Abernethy, an eminent English surgeon, used to say that "one-fourth of what we eat keeps us; the other three-fourths we keep at the risk of our lives."¹⁹ If we were more careful not to eat too much, many attacks of biliousness, sick headache, gout, rheumatism and uric acid diathesis could be avoided.

The nature of the food which we eat should be regulated according to the season of the year. During the winter season much fatty food is desirable and necessary; in the spring of the year,

"When the green gets back in the trees
And the bees get to buzzin' again,"

the heavy, greasy articles of diet, so beneficial during the winter months, should be changed to one more cooling and refreshing. We should eat more lettuce, spinach, spring onions, tomatoes, strawberries, etc., and drink less sassafras tea to "thin the blood."

Many country folks make a big mistake by going out into the hot sun immediately after eating a hearty meal. Sunstroke, apoplexy, acute indigestion and heart failure occasionally result,

¹⁸Dr. M. L. Holbrook, in his little book entitled "Eating for Strength," makes the following statement on p. 32 in reference to the daily wants of the human body:

"The requirements of the body vary with age, sex, occupation, health, work done, climate and race. Therefore, any attempt to decide just how much any person should eat would be fruitless. Still, some facts may be useful and instructive. In the first place, it may be stated that as a general rule a healthy man requires from 700 to 800 pounds of perfectly dry food in a year. This amounts to about two pounds of solid matter daily. In addition to this are required from five to six pounds of fluid. So, again, a man cannot live well on the meager diet of a pound of bread daily, with water, but will become thin and weak. It is said that the poor needle-women of London almost starve on a daily allowance of a pound and a half of bread and an ounce and a half of butter daily."

¹⁹I like the anecdote told of Mr. Abernethy (1764-1831), one of the ablest English surgeons of the past and a pupil of the celebrated John Hunter (1728-1793):

A distinguished duke waited upon that blunt, but excellent, surgeon with reference to a disease of his eyelids. He said: "Doctor, I am afraid there is serious mischief here," touching his eyes. The doctor, who had a great horror of talking patients, said: "My Lord, if you will keep silent and let me do the talking, I will tell you what your trouble is. Your disease is not where you think it is. The real malady is here," touching his Lordship's immense stomach. "Your kitchen is foul, and, of course, the poisonous effluvia will ascend to the garret. In your case, it shows itself in the eyes. Now, if you will clear the kitchen, the garret will require no special purification. You must do, my Lord, as the great Duke of Wellington has done in several of his famous sieges—cut off the supplies, and the enemy will leave the citadel."

especially in persons beyond middle life.²⁰ A respite of 15 or 20 minutes after a full meal may be the means of averting such an attack. While dwellers in rural districts are not much given to after-dinner speaking, I might mention that it is not unattended with danger. To cite two examples, reference needs only be made to the late Dr. I. N. Love of New York, and the late Hon. William Windom, Secretary of State, both of whom dropped dead while making an after-dinner speech.

In regard to drink, there is nothing like good, pure, cool spring water or cool well water—so cool that the addition of ice is unnecessary.²¹ I am opposed to the use of very much ice, and it has even been asserted that drinking ice-water is a cause of appendicitis. There is unquestionably some truth in this statement, because the imbibition of large quantities of ice-water causes a catarrhal condition of the intestines, which may extend to the appendix.

Milk is a good, nutritious article of drink for young persons, but I question its use in persons beyond middle life. It should be drunk very slowly, sipped, in fact, instead of gulped down, as is usually the case.

VI. PREVENTABLE DISEASES.

In the field of preventable diseases there is much to be done in the rural districts. The country is looked upon as the stronghold of typhoid fever, and if these scattered remarks tonight enable one person to ward off an attack of this dread disease, I shall feel amply repaid for my efforts.

The rural and suburban portions of our population—some 600,000 souls—possess but slight knowledge of preventable diseases. This is to be deplored, because many valuable and useful lives are prematurely ended through the intervention of infectious or preventable disease.²²

The most important infectious or preventable diseases are the following: Tuberculosis, typhoid fever, scarlet fever, diphtheria, measles, whooping-cough, chicken-pox, influenza, smallpox and malaria. I almost shudder when I pronounce these names, calling to mind, as I do, the disastrous consequences which so often follow in their wake. A child born in rural Maryland is to be

²⁰Dr. H. C. Wood, Jr., on pp. 9 and 10 of his essay on "Thermic Fever, or Sun-stroke," published in 1872, makes the following statement concerning the causation of the malady:

"In the first place, in regard to the etiology of the disease, my own experience is that the only absolutely necessary and the everpresent, immediate cause is heat, solar or artificial. It was formerly believed that exposure of the head to the direct rays of the sun was requisite, but this is now well known not to be true. One of my own cases originated in a sugar refinery."

²¹W. P. Mason, in his notes entitled "Examination of Potable Water," says, on p. 5:

"It has been held as a golden maxim by one of our authorities on water analysis 'never to pass judgment upon a water the history of which is not thoroughly known.'"

²²In his healthy and perfect state, in the full meridian of his usefulness and vigor, "What a piece of work is a man!—how noble in reason! how infinite in faculties! in form and moving how express and admirable! in action, how like an angel; in comprehension, how like a god; the beauty of the world! the paragon of animals!"

congratulated if it reaches the age of young manhood or young womanhood. In the first place, it is probably ushered into the world by the aid of a midwife who possesses but little technical knowledge. So little attention is paid to the event that it is doubtful if an official record is made of its birth. If it lives through the perilous "second summer," it becomes legitimate prey to the tender mercies of the diseases of childhood.²³

Is it surprising, then, that the "pale and sickly cast" should meet the experienced eye at almost every turn of the road? Scarlet fever leaves it with a running ear; measles, with weak lungs; diphtheria, with a weak heart, while severe attacks of whooping-cough, chicken-pox and influenza so lower its vitality that it is a wonder it survives at all.

All of these diseases can be prevented. Tuberculosis, the "White Plague," is especially a preventable disease. It is not hereditary, but arises from another case of tuberculosis, being transmitted chiefly by means of infected dust or infectious particles thrown off in the act of coughing.

What can the people in the rural districts do to ward off tuberculosis? In this State nearly 2500 deaths result annually from tuberculosis. More than half of these are in suburban and rural communities. In the entire State there are always nearly 10,000 persons ill with the disease.²⁴

In the first place, greater care should be taken in regard to expectoration. In rural communities, especially, consumptives expectorate on the sidewalks, pavements, railroad station platform, on the floors in public places, and even on the floors in the home. His handkerchief, teeming with tubercle bacilli, is drawn from his pocket and shaken over the dinner table or into the faces of

²³"Constitutions are not made, but grow." In a "Dissertation Upon the Cholera Infantum; with Rules and Regulations As Preventive Means of the Autumnal Diseases of Children Which Gained the Boylstonian Prize for the Year 1803," written by Dr. James Mann, A.M., fellow of the Massachusetts Medical Society, there appears the following suggestive paragraph on pp. 27 and 28:

"Filth and dirt are supposed to be one cause of this disease. Under this article are included filthy habitations, dirty clothing, animal and vegetable substances in a state of decay. From the above sources, combined with heat and moisture, is formed an infectious state of atmosphere which disposes the human body to disease. What the characteristic principles of these subtle materials are which emanate from reservoirs of filth elude our researches. It is probable they may not be dissimilar to those offensive agents which are generated within, the alimentary canal from acetous and putrid fermentation. These principles of infection most probably always exist in the common atmosphere, but become active only when they are in a concentrated state. This is one reason which may be offered why the inhabitants of close-settled cities and populous towns are more exposed to the scourges of disease than those of thinly-scattered villages. The fatal effects of an infectious atmosphere are already too well known by the annual epidemics which prevail in most of our large towns to require a circumstantial detail. Infants, who are the most susceptible, are generally the first victims of its morbid influence. These offensive materials have been variously denominated, according to what has been supposed their nature and origin, from which are obtained the names *morbific*, *effluvia*, *marsh miasmata*, *mephitic vapour*, *animalcule contagion*, *putrid fermentation*, *nitrous acid gas* or *septon*. The materials of exhalation and perspiration, when they are suffered to be accumulated, are real poisons. These also, in such states, form spheres of infectious principles around the bodies from which they originate. As the most mortal forms of disease are supposed to have their existence from these causes, it may be literally said of the animal system, even in a state of health, that it is a storehouse of infection."

²⁴Nearly a century ago Dr. James Blake wrote the following suggestive sentence: "Now I think we may conscientiously tell our consumptive patients that when living out in the mountain air they are doing far more to re-establish their health than anything we can do for them."

the other members of the family. The same drinking-cup and eating utensils are used by the consumptive and others in the household. If a male, his beard and mustache are probably infected by coming in contact with the expectorated matter. Kissing the other members of the family, and even relatives, is practiced. His sleeping-room is never fumigated and rarely ventilated, and other members of the family occupy it with him. Taking into consideration the above conditions, is it any wonder that tuberculosis was formerly considered hereditary?

The part which rural communities can play in the suppression of tuberculosis can be summed up as follows:

- (1) Greater care in regard to expectoration.
- (2) Better personal hygiene and hygiene in the home.
- (3) A prompt registration of all tuberculous persons, so that the advice and co-operation of the local health officer and the State Board of Health can be secured.

But what shall I say about typhoid fever, sometimes called "drain fever," by reason of its frequent association with bad drainage? Typhoid fever is the bane of country life. The country place is its stronghold, and thence it is disseminated almost broadcast throughout the land. In the year 1911, in rural Maryland, 349 persons died of typhoid fever. These deaths comprised persons in the prime of young manhood and in the flower of young womanhood. In point of fact, typhoid fever almost invariably attacks persons in the prime of life.

The following means and methods will aid very materially in preventing typhoid fever in rural districts:

- (1) The use of a pure drinking-water supply.
- (2) Protection against flies. The screening of houses is essential.
- (3) Supervision of the milk supply. Allow no one connected with a typhoid fever case to work about the dairy. Guard against washing the milk cans and other utensils with infected water.
- (4) Do not use so-called "night soil" on growing vegetables intended to be eaten raw, except in conformity with the regulations set forth by the State Board of Health.
- (5) Proper attention should be paid to sewage and drainage.²⁵

Observation has convinced me that sewage and drainage are very defective in most rural districts and in most country homes.

²⁵Dr. Charles Caldwell, on pp. 109 and 110 of his *Medical and Physical Memoirs, Containing Among Other Subjects a Particular Inquiry Into the Origin and Nature of the Late Pestilential Epidemics of the United States*, published in 1801, emphasizes the following as one of the ten causes which co-operate in the production of our autumnal epidemics, with especial reference to the city of Philadelphia:

"Dirty yards, cellars and privies. In a city as extensive and populous as Philadelphia these are sources of immense exhalation. They have been known to produce cases of yellow fever, even in the depth of winter, and must greatly increase our epidemics of summer and autumn. They should be subject to the inspection of officers of police, and when neglected their cleanliness should be enforced by the imposition of fines.

"Besides the influence of our privies in injuring the atmosphere by exhalation, they have also an effect in contaminating the waters of our pumps. These serve as an additional medium for conveying their poisonous particles into our systems, and are probably instrumental in the production of disease. Under the disadvantage of their present construction, I am sorry to observe that our privies constitute a nuisance not easily remedied."

- (6) Careful disinfection of all typhoid discharges.
- (7) Prompt medical attendance in all suspected cases of typhoid fever.
- (8) A prompt reporting of all cases or suspected cases of typhoid fever to the local health officer. It is the duty of the attending physician to perform this service.
- (9) Guard against transmission of the disease by contagion or direct contact. This also applies to eating utensils, fever thermometers, etc.
- (10) Inoculation against typhoid fever. This is a means of preventing typhoid fever which has given good results, and it is within reach of all.

In regard to scarlet fever, it is fast becoming a rare disease. The following are the chief means of combating it:

- (1) Prompt isolation of cases or suspected cases of the disease.
- (2) A prompt reporting of such cases by the attending physician to the local Board of Health.
- (3) Terminal disinfection; that is, disinfection of the patient's room, clothing, etc., after recovery.²⁶

When I speak of diphtheria, I refer to a disease which medical science has practically conquered. Indeed, I might go so far as to say that *it is unnecessary for anyone to contract typhoid fever if he (or she) will submit to typhoid inoculation; and it is equally as unnecessary for a person to contract diphtheria if he (or she) will be immunized against it.* Unfortunately, in country districts especially, children still die of diphtheria even before the disease is recognized. Therefore, to protect the boys and girls,²⁷ the "hope of our country," I desire to formulate the following advice:

- (1) Regard every case of suspicious sore throat as diphtheria until proven by culture to be otherwise.
- (2) Isolate such a case at once, and send for your family physician.

Measles is a disease which is pretty hard to control. Many cases are mild, and a physician is not even summoned. Then,

²⁶The importance of terminal disinfection was early recognized by the College of Physicians of Philadelphia. In a Memorial published in 1798 entitled "Facts and Observations Relative to the Nature and Origin of the Pestilential Fever Which Prevailed in This City in 1793, 1797 and 1798," the following suggestive paragraph occurs on p. 10:

"The measures to be pursued for purifying the city from any latent infection are such as we have heretofore recommended, viz.: a strict attention to cleanliness, washing, whitewashing and ventilating the infected houses, bedding and clothing, and fumigating them with charcoal and sulphur or a mixture of oil of vitriol and saltpetre. These, with the frost, we believe, will be found sufficient entirely to destroy any latent contagion."

²⁷It has been most truly said, "Man is not a mere producer, a mere machine. His life or death, his happiness or misery, is much too high an object upon which to place a pecuniary value. He is more nicely made, more wonderfully organized, requires to be guarded with more care from any influence that may surround him to produce disorganization and unfit him for use; is capable of higher and nobler purposes, and has a higher and nobler destiny, and in proportion as in each of these he exceeds a mere machine, in such proportion ought we to regard his intellectual and moral nature, and the means used to preserve and develop his physical powers, to enable him best to accomplish the great purpose of his existence."

too, there is no serum or protective inoculation against measles. In stamping out this disease we have to rely largely upon—

(1) Isolation of all cases, whether mild or severe.

(2) A prompt reporting of every case, no matter how mild. If no physician has been called, this duty devolves upon the parents or householder.

(3) It would be well to disinfect after measles, but as the contagious principle in this disease is not very tenacious of life, disinfection is rarely done, certainly in rural districts.

While whooping-cough, chicken-pox and influenza are very contagious, even partial isolation of the patient and careful attention to the simple rules of cleanliness usually suffice to prevent their spread. All of these diseases, like the foregoing, are reportable.

Smallpox needs scarcely be mentioned, as there has not been a case in the State of Maryland so far this year. Vaccination is a sure preventive when danger from smallpox is imminent.

Malaria, commonly called "chills and fever" and "fever and ague," is another distinctly preventable disease. Screening the living-rooms, as well as the sleeping apartments, as should be done anyhow as a protection from flies, is very necessary; but it is better policy to destroy the breeding places of the mosquito, a certain variety of which transmits the parasite of malaria. Before the enunciation of the mosquito theory of the transmission of malaria by Dr. A. F. A. King of Washington, D. C., in the year 1882, country folks usually took the following precautions against malaria:

(1) They made it a rule to sleep in the second or third story, believing that the "bad air" which caused malaria circulated low and circulated at night.

(2) They grew numerous sunflowers, beautiful and attractive in themselves, and believed to promote health.

(3) They planted the willow tree and the blue-gum tree, especially the first.

Undoubtedly much good was accomplished by these primitive methods, resorted to by rural folk in their early efforts to guard against malaria. For instance, mosquitoes are much more numerous on the first floor of a dwelling than in the upper stories. The sunflower extracts much moisture from the soil, thus aiding in the draining of marshy land, wherein the mosquito especially thrives; and the same salutary result is accomplished by the willow tree and the blue-gum tree, both of which absorb much moisture by means of numerous tiny rootlets, said moisture passing off from the leaves by evaporation.²⁸

²⁸J. Disturnell, in his masterly volume, "Influence of Climate in North and South America," published in 1867, records the following interesting data, on pp. 181 and 182, under the caption, "Climate of the Middle States":

"The Middle States, lying southwest of New York, are comprised of New Jersey, Pennsylvania, Delaware and Maryland. Pennsylvania, extending the most northwardly, is bounded by 42 degrees N. Latitude, and Maryland, the most southwardly, is bounded by 38 degrees N. Latitude on its eastern limits. This section of country extends from the Atlantic Ocean to Lake Erie, on the western confines of Pennsylvania, 80 degrees 40 minutes W. Long. * * * The Allegheny range of mountains extend through Pennsylvania and Maryland, lowering the temperature in some elevated places very materially. * * * The southern section of the

VII. SEWAGE AND DRAINAGE.

I have now arrived to the last item in my paper—the problem of sewage and drainage. If any intelligent person were asked to name what he (or she) considers to be the most important questions now confronting the rural portion of our population, the answer would probably be as follows:

First, the migration of the inhabitants of the rural districts to the cities; largely a social and economic problem; and second, the question of sewage disposal and drainage.

The question of sewage and drainage constitutes the most important public health topic of the present day. This is essentially so in suburban districts and in rural communities. In no quarter of the globe has it become more markedly manifest than in the environs of the city of Baltimore.

Go to the average country home or rural community, and what do you see? We behold, with astonishment, the “two graces” in typhoid fever dissemination, namely, the surface toilet and the surface well, hugging one another almost as closely as the late world-famous Siamese twins. If we tarry yet a little while we shall see myriads of house-flies, wending their way from the toilet to the kitchen and dining-room, not at all weighed down by a burden of some 600,000 disease germs each.

With such conditions staring us in the face, is it any wonder that the country home, or the farm, is called the stronghold of the deadly typhoid bacillus? Shall we continue to be amazed to observe that typhoid fever, dysentery, infantile diarrhoea and intestinal parasites are more prevalent in “fly time?”

The fly is not the only transgressor where the insanitary surface toilet exists. Poultry, swine and other domestic animals soon find the way thereto, and play a part in the work of destruction and death.

During a freshet the infectious material may be washed directly into a well unprotected from surface drainage. Or it seeps into the soil, eventually reaching the water-bearing strata. As typhoid germs have been known to live a year buried in the soil, it would be at least that long before the water drawn from an infected well would be safe for drinking purposes, even if the insanitary conditions were corrected.

The public drinking-cup has been abolished by law; and I am of the opinion that the surface toilet must also go if we desire to foster public health in the rural districts. Then we shall have destroyed one of the principal breeding places of flies, now rec-

Middle States has a mean temperature of 58 degrees Fahr. The seasons are as follows: Spring, 58 degrees; summer, 76 degrees; autumn, 59 degrees; winter, 37 degrees. The southern portion of Maryland, lying on the Chesapeake Bay, is a level, sandy section of country, producing Indian corn, wheat, tobacco and sweet potatoes. The country here changes materially from that portion lying above Mason and Dixon's line, or the northern boundary of Maryland bordering on Pennsylvania. The average annual fall of rain in the Middle States is 40 inches, the largest quantity falling near the seaboard, or in the vicinity of Chesapeake and Delaware Bays. * * * Intermittent and other fevers prevail in the southeast part of this region, in the vicinity of Chesapeake Bay, while the climate found on the seashore from New Jersey to Virginia is celebrated for its health-restoring and invigorating qualities."

ognized as so potent a factor in the dissemination of typhoid fever.

So long as the surface well is in use, it will continue to be a Goliath in the spread of typhoid fever. A public water supply of, undoubted purity should be provided in all rural communities, while on the farm a driven well or an artesian well should be the rule. In a few instances a progressive farmer has sunk an artesian well, erected a wind pump and water tank, and equipped his home with a modern bathroom. I believe this movement will soon become general, and every up-to-date country home will eventually be provided with a pure and wholesome water supply, as well as every facility for bathing.

The drainage of many suburban places in Maryland is notoriously defective. There are none worse than some of those in the immediate vicinity of Baltimore. But Baltimore is not saying a word, because, although founded in 1729, the city itself is just now installing a sewerage system.

I believe the day will soon dawn when every city and incorporated town in the State of Maryland will have its sewerage system, and every well-regulated farm its sewage-disposal plant. Then the perplexing "night-soil" problem will have solved itself. Then, too, that dread scourge—typhoid fever—will be well-nigh eradicated; infantile diarrhoea will be almost stricken from the mortality roll, and intestinal parasites will be gazed upon as pathological curiosities in our medical museums. The last pair of house-flies will have been tenderly stored away by Professor Uhler²⁹ in the museum of the Maryland Academy of Sciences, and generations yet unborn will gaze upon them in wonderment to think that their forefathers permitted such filth-loving, disease-bearing insects to dwell among them.

Too much credit cannot be given to the noble work done by the various civic leagues, women's clubs, men's clubs and similar organizations throughout the State in the cause of improved sanitation or physical betterment in urban, suburban and country life. The Women's Civic League of Baltimore may be exploited as one whose example is well worthy of emulation. Its members, never weary in well-doing, have achieved wonderful results, and their methods have been widely copied by other cities intent upon civic betterment.

VIII. CONCLUDING REMARKS.

The importance of rural sanitation cannot be overestimated. Upon it often hangs the health of an entire city, in addition to that of the rural community itself. City people, in fact, all classes and conditions of mankind, are dependent upon the farm and farm products. In the eloquent words of Daniel Webster, uttered in the year 1839:

²⁹Philip Reese Uhler, LL.D., born in Baltimore, June 3, 1835. A well-known entomologist: formerly assistant to Prof. Louis Agassiz. For a number of years he has been president of the Maryland Academy of Sciences and associate in natural history at the Johns Hopkins University. Until recently he was provost and librarian of the Peabody Institute. He is now entirely blind and in feeble health.

"Agriculture feeds us; to a great degree it clothes us; without it we could not have manufactures, and we should not have commerce. These all stand together; but they stand together like pillars in a cluster, the largest in the center—and that largest is Agriculture."

To be a little more explicit, not one of you would care to purchase beef or milk from a farm upon which you knew tuberculosis prevailed among the cattle. You would not care to purchase milk from a farmer in whose family typhoid fever, scarlet fever or diphtheria prevailed. Spareribs or pork chops would not be half so toothsome if you knew they came from a herd of swine decimated by hog cholera or swine plague. Beefsteak and onions could not be eaten with as much relish if you knew that one or more of the "four great bovine scourges"—pleuropneumonia, rinderpest, foot-and-mouth disease and tuberculosis—prevailed among the cattle, or that the onions had been fertilized with so-called "night soil." As a matter of fact, unless you thought the sanitary condition of the farm was reasonably good, you would seek elsewhere for the necessities of life.

Just 400 years ago Ponce de Leon sought to discover the "fountain of perpetual youth," and lost his life in the attempt. It is half a century since Brown-Sequard announced that he had discovered the real "elixir of life." But these and all similar attempts have proven futile, and the best that we can do is to lead the simple life in order to round out the full measure of our days.³⁰ According to Mrs. Osgood, "Labor is rest";³¹ and simple industry is oftentimes the keynote to physical as well as worldly success.

In the course of my remarks I have dwelt largely upon infec-

³⁰The following classical statements appear in an introductory lecture to the course of theory and practice of medicine in the medical department of Pennsylvania College, delivered October 14, 1856, by Dr. Alfred Stillé, and entitled "The Unity of Medicine":

"The only certain event in life is Death. Sooner or later a sickness befalls every one which no vigor of constitution can withstand, and which no physician's skill can cure. All other illnesses spare the life, and are led to a favorable issue by natural strength or by art, or by both of these united. Thus we perceive there is one direction in which nature opposes an impassable barrier to human power; that there is one hour in which knowledge, experience and devotion are all in vain. But we cannot tell at what period of life the supreme summons shall arrive. * * *

"* * * In spite of hygienic rules, or owing to their neglect, it is certain that diseases abound. They beset the path of life from its commencement to its close, attacking the germ in the womb, blasting the blossoming hopes of childhood, prostrating man in his pride and power and cutting down the hoary head upon the verge of the grave. No wonder that it should have been one of the earliest of human efforts to find the means of mitigating the pains of sickness and of averting death."

³¹Mrs. Frances Sargent Osgood, American poetess, born, 1811; died, 1850. The full stanza is:

"Labor is rest—from the sorrows that greet us;
Rest from all petty vexations that meet us,
Rest from sin-promptings that ever entreat us,
Rest from world-sirens that lure us to ill.
Work—and pure slumbers shall wait on thy pillow;
Work—thou shalt ride over Care's coming billow;
Lie not down wearied 'neath Woe's weeping willow!
Work with a stout heart and resolute will!"

tious diseases and vital statistics, or the "bookkeeping of humanity."³² The importance of these subjects in rural sanitation or physical betterment in country life cannot be sufficiently emphasized. The diseases of infancy and childhood, especially those common to school children, are far-reaching in importance—facts which are now being brought forth in a clearer light by the noble work of our school inspectors. Inspection of schools, however, should not be restricted to our larger cities, but should penetrate to even the remotest country districts.³³

Many infectious diseases find access into the bodies of school children by way of the mucous membrane of the nose and mouth, and also by way of the tonsils. In fact, these three—nasal mucous membrane, buccal mucous membrane and tonsils—constitute the most important "portals of entry" for the infectious agents causing diphtheria, measles, scarlet fever, pneumonia, epidemic cerebro-spinal meningitis, and probably infantile paralysis. Therefore, it is of paramount importance that school children should be inspected, and diseased conditions of the upper air passages, such as adenoids, enlarged tonsils, chronic catarrh, etc., be promptly treated by a competent physician.

Ventilation of country homes, as well as of schoolrooms and all public places, should receive greater attention. Fresh air and sunshine, Nature's best disinfectants, are readily accessible to all. Few country homes can be properly ventilated, because the windows can rarely be lowered from the top.

³²The annual address before the Medical Society of the County of Albany, New York, delivered on November 8, 1859, by Dr. Sylvester D. Willard, president of the society, was entitled "The Importance of Mortuary Statistics." In it is found the following paragraph, on pp. 10 and 11:

"Disease has lessened in some portions of the city (Albany, N. Y.) at least one-third—I speak without figures—and there has been, I apprehend, a corresponding diminution in mortuary results, effected by the introduction of a full supply of pure water; but in nothing are the interests of Albany more neglected than in its sanitary measures. It has no medical police. Its Board of Health has no vitality. The laws of health are grossly violated. Slaughter-houses are allowed within the city limits, and every wind blows the foul odor of their unahated nuisances over our population. There is no sufficient regulation for the removal of garbage. Privy vaults are allowed to remain reeking with filth and exhaling sickening effluvia. Stagnant water evaporates in some of our streets. Ponds, in which are cast dead bodies of every description, from horses to still-born children, are left undrained; and not unfrequently the carcasses of dead animals putrefy and rot in the streets unremoved. Our most public thoroughfares are made filthy by the daily droves of cattle and swine. Cellars, dark, damp and unventilated, are inhabited. Stables in the most disgusting condition are on our very borders. From all these and other sources the poisoned miasma arises and settles upon our unguarded people. They die and are buried, and no mortuary statistics remain to warn others against these evils. The body politic may shrink from such testimony, but it is true, and their laws do not interpose to prevent and make it otherwise."

³³The following paragraphs occur at the close of an admirable pamphlet entitled "Hints Respecting the Chlorosis of Boarding Schools," written by the author of "Hints Respecting the Distresses of the Poor," and published in London in 1795:

"Unfortunately, schools that have arisen to reputation soon become too crowded with inmates for the advantages of health. On entering a schoolroom crowded with children a very unpleasant smell and heated air disrusts a person coming from the fresh air: this foul air tends to enfeeble the children, relaxes the frame and renders it susceptible of cold and disease; and hence all schoolrooms should be furnished with ventilators placed low in the room, and there should be air holes considerably above to allow the rarefied air to escape while fresh air is supplied by the ventilators."

"These cursory hints I now refer to the consideration of the public, being persuaded that, were the management of children regulated by them, chlorosis would rarely occur; nor would sore throats and low fevers so often thin and almost annihilate schools near the metropolis. I have seen the issue of whole families swept away by their fatality; and, if the hints suggested shall preserve any individual from this melancholy catastrophe, I shall not have written in vain."

"All men desire to live long, but no man would be old,"³⁴ is a sentence which I parsed in the grammar school 25 years ago. But a great writer has said, "We live in deeds, not years,"³⁵ and that mysterious essence which we call life has been defined as "the sum total of forces by means of which we resist death." There are foes from within³⁶ and foes from without. We may acquire tuberculosis from our brother-man. The house-fly may give us typhoid fever; the cat, scarlet fever and diphtheria; the dog, tape-worms and other intestinal parasites, while the rat may transmit to us bubonic plague.

But I have detained you long enough. I thank you, one and all, for your unflinching attention. In conclusion, I desire to quote an editorial, full of wit and humor, yet not totally devoid of scientific truth. It is entitled "The Danger of Being Alive," and reads as follows:

"Drink water and get typhoid fever. Drink milk and get tuberculosis. Drink whiskey and get the jim-jams. Eat soup and get Bright's disease. Eat meat and encourage apoplexy. Eat oysters and acquire toxemia. Eat vegetables and weaken the system. Eat dessert and take to paresis. Smoke cigarettes and die early. Smoke cigars and get catarrh. Drink coffee and obtain nervous prostration. Drink wine and get the gout. In order to be entirely healthy, one must eat nothing, drink nothing, smoke nothing, and even before breathing one should make sure that the air has been properly sterilized."

³⁴Dr. John Gardner, in his volume entitled "Longevity: the Means of Prolonging Life After Middle Age," published in 1875, advances the following summary of his views concerning old age on p. 155:

"Ageing is a result of the operation of several concurring causes. Mere lapse of time will produce it. But ageing does not synchronize with age; that is, with the number of years a life has continued. In some persons it begins earlier, and in others later.

"Ageing consists in molecular changes proceeding in all the textures and organs of the body, involving a deterioration, degradation or a species of decay. It may exist without suffering or consciousness of the change. A person may say, and truly, 'I am quite well for an old man, or an old woman.' The qualification implies that there is some degree of weakness, some departure of power formerly enjoyed, and the tendency is daily toward more and more debility."

³⁵"We live in deeds, not years; in thoughts, not breaths;

In feelings, not in figures on a dial.

We should count time by heart-throbs. He most lives

Who thinks most, feels the noblest, acts the best."

³⁶The colon bacillus may be cited as a typical example of a "foe from within": likewise the pneumococcus. The former is a normal inhabitant of the intestinal tract of man and warm-blooded animals; the latter, according to Netter's observations, is found in the mouths of 20 per cent. of healthy persons. But let the intestinal canal become deranged, and the colon bacillus is liable to cause appendicitis. Or let the lungs become congested and their vitality below par, and the pneumococcus is prone to bring about an attack of pneumonia.

